Potassium - Its crucial role in the plant

What is potassium?

As a macro-nutrient, potassium plays a major role in pasture production. It is the most abundant cation (a positively charged nutrient) in the plant and its main roles include energy and water movement which helps the plant manage cold and heat stress, disease and insect tolerance and pasture recovery.

Potassium is referred to as a mobile nutrient in the plant - therefore when deficiency of potassium occurs it can be seen on the older leaves first. This can be identified by a yellowing or scorching of the tips of the leaves.

The image above shows the yellowing of the older leaves indicating a potassium deficiency.

How do you lose potassium?

Potassium's mobility and abundance in the plant means that it is removed in large quantities, with fodder conservation representing the biggest loss. It is important to be aware of what nutrient is being removed from paddocks and how this may be cycled around the farm.

The table below shows the approximate kilogram of nutrient loss per one tonne of dry matter of silage and hay.

Feed source	Approximate nutrient removal rates (kg/t DM)			
	Nitrogen (N)	Phosphorus (P)	Potassium (K)	Sulphur (S)
Ryegrass/clover silage	30	4.3	27	4
Ryegrass/clover hay	30	3	20	3

Table 1. Estimated nutrient loss per 1 tonne of dry matter (t DM) in silage and hay *

*Source: Adapt from 'Successful Silage' Dairy Australia and New South Wales Department of Primary Industries 2004

When calculating nutrient loss it is good to note the following averages:
Average Hay bale 5'x4' (350kg) is typically 0.3t DM
Average Silage bale 4'x4' (600-750kg) is typically 0.24 - 0.3tDM

Application of potassium

Whilst applying large amounts of potassium in one application isn't advisable due to luxury uptake (when the plant takes up much more potassium than it requires- particularly in spring), it's necessary to match potassium applications with the plant's requirements. This is important as it ensures the plant has adequate nutrition to match the increased production of dry matter during peak growing times.

Other factors such as soil type, recycling of nutrient and effluent use should be taken into consideration when assessing the pasture's requirements.

Speaking to your Brown's Agronomist about planning applications to meet your pasture's potassium requirements will help to give your pasture the production you've been chasing!

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